

ABSTRACT

A moisture sensing apparatus includes an oscillator for supplying an AC signal to a driven ring of a sensor having a pad inside the ring, and a ground plate around the ring. An amplifier forms part of a temperature-compensated, precision rectifier, and is connected to the pad. A first diode connected to the output of the amplifier in a feedback loop of the amplifier, where the amplifier nullifies temperature variation effects upon the diode, and supplies a rectified signal which is a function of moisture content of material in contact with the sensor. A second diodes is connected between the amplifier output and other input of the amplifier. The sensor has a rounded configuration to avoid electrostatic field fringing effects, and a passive impedance with both resistive and capacitive members is connected in parallel with the sensor to provide a functional baseline for the rectified signal.